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January 30, 1996

Mr. William F. Caton, Acting Secretary
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

In re: PR Docket No. 92-235
Written Ex Parte Communication of The Ericsson Corporation

Dear Mr. Caton:

Pursuant to the provisions of Section 1.1206 of the Commission's rules, this letter will serve to advise you that on this date, a copy of the attached written ex parte communication was sent to Kathryn Hosford. The Ericsson Corporation hereby submits two copies of the letter for inclusion in the record in the above-referenced proceeding.

Should you have any questions regarding this matter, kindly communicate directly with the undersigned.

Very truly yours,

David C. Jatlow
Counsel for The Ericsson Corporation

cc: Kathryn Hosford

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January 29, 1996

Ms. Kathryn Hosford
Private Radio Division
Wireless Telecommunications Bureau
Federal Communications Commission
Washington, D.C. 20554

In re: PR Docket No. 92-235
Written Ex Parte Communication of The Ericsson Corporation[1]

Dear Ms. Hosford:

Pursuant to the provisions of Section 1.1206 of the Commission's rules, The Ericsson Corporation (hereinafter referred to as "Ericsson") hereby submits a written ex parte communication with respect to the *Petition for Reconsideration and Clarification ("Petition")* submitted by Motorola, Inc. ("Motorola") in the above-captioned proceeding. In support thereof, Ericsson states as follows:

In its Petition, Motorola requested that the Commission reconsider the adoption of Section 90.210(d)(4) as promulgated in the *Report and Order and Further Notice of Proposed Rule Making* in PR Docket No. 92-235, which provides that measurements demonstrating compliance with the newly adopted emission mask be conducted with instrumentation having a resolution bandwidth of 100 Hz.[2] Motorola requested that the Commission reconsider that particular rule by requiring the measuring device to be set to 300 Hz resolution bandwidth for measurements less than 50 kHz removed from the edge of the authorized bandwidth. According to Motorola, the change requested would be consistent with recommendations of TIA and would avoid an additional 5 dB of adjacent channel interference from being created. As will be demonstrated below, TIA has not recently recommended that the resolution bandwidth be set to 300 Hz. Furthermore, any discussion of additional energy being emitted into adjacent channel bands must be viewed

[1] Pursuant to the provisions of Section 1.1206, on this date, two copies of this letter have been submitted to the Secretary of the Commission for inclusion in the record of this proceeding.

[2] Motorola's Petition specifically references Section 90.210(d)(4) which requires the use of a 100 Hz resolution bandwidth for measuring emission masks for 12.5 kHz channel bandwidth equipment. Ericsson submits that whenever Section 90.210 requires a specific resolution bandwidth be used, 100 Hz is appropriate.

as relative to a variety of factors including, but not limited to, the modulation scheme and data speeds used. Thus, standing alone the claim of an additional 5 dB of interference being created as a result of using 100 kHz resolution bandwidth is misleading at best and erroneous at worst. Finally, from a technical standpoint, use of 100 Hz resolution bandwidth is more likely to determine if adjacent channel interference is likely to occur.

In 1993 TIA recommended that measuring devices use a resolution bandwidth of 300 Hz when evaluating compliance with emission masks. The 300 Hz resolution bandwidth was not, however, suggested because it was scientifically or technically more accurate than a resolution bandwidth of 100 Hz. Rather, TIA proposed 300 Hz because most measuring devices in use at that time generally were only capable of measuring to that degree of accuracy and that was common practice at the time. Today, virtually all measuring devices are capable of using a resolution bandwidth of 100 Hz. Proof that TIA's earlier position was not based on technical considerations is evidenced by the fact that on August 18, 1995, TIA filed a petition for reconsideration in the above-captioned proceeding on a number of specific matters. The fact that TIA did not seek reconsideration of the rule requiring a resolution bandwidth of 100 Hz suggests it acquiesced in the Commission's decision to adopt Section 90.210(d)(4).

From a technical standpoint, the use of 100 Hz resolution bandwidth is also sound. Indeed, in view of the general principle underlying the Refarming decision, i.e., that spectrum efficiency in the bands below 470 MHz can be increased by using narrowband channels, use of 100 Hz resolution bandwidth is a more appropriate standard than 300 Hz.

The main purpose of defining emission masks is to control the energy transmitted into adjacent channels. Emission measurements using 100 Hz resolution bandwidth provide a more accurate indication of the true interference level as measured by a power meter centered at the adjacent channel. In fact, 100 Hz resolution bandwidth measurements using a sufficient number of sweeps or sweep time provides results closer to real world interference models. For example, Exhibit A, attached hereto, shows the analytical power spectral density of an MSK signal compared to simulated spectrum using 100 Hz, 300 Hz and 1 kHz resolution bandwidth. The graph clearly proves that the power spectral density of a signal when using 100 Hz resolution bandwidth more closely approximates the true power spectrum of a signal in the air than is achieved through the use of 300 Hz resolution bandwidth. In addition, Exhibit B attached hereto, shows the power spectral density of a typical signal relative to the emission mask adopted by the Commission when using 100 Hz resolution bandwidth and 300 Hz resolution bandwidth, respectively. Exhibit B graphically demonstrates that, relative to the emission mask, measurements using 100 Hz resolution bandwidth does not change the true interference

level at all. Also, the difference between 300 Hz and 100 Hz resolution bandwidth is insignificant in terms of true interference.

Without specific justification, Motorola asserts that use of 100 Hz resolution bandwidth will result in an additional 5 dB of energy being placed into adjacent channels. Aside from the fact that the claim of 5 dB is not technically justified, the Commission should note that 5 dB standing alone is a relatively meaningless conclusion due to a lack of a reference level. Any claim of additional energy emitted into adjacent bands is relative to a variety of factors including the type of modulation used as well as the data rate of the modulation scheme. This is not to suggest that no additional energy may be transmitted into adjacent bands by using 100 Hz resolution bandwidth. It is to suggest that any additional radiated energy into adjacent bands is only likely to occur by increasing the spectrum occupancy of the transmitted signal without a corresponding tightening of frequency deviation rules. Ericsson is not aware at the present time of any products planned or under production which might tend to cause interference.

Moreover, in its Petition, Motorola itself notes that 100 Hz resolution bandwidth is generally satisfactory today thus confirming that its arguments about increased adjacent channel interference are speculative at best:

> Motorola notes that while the emissions mask as revised will adequately protect most installations, its continued utility is being threatened by the variety of modulation schemes and technologies being introduced in the private land mobile frequency bands. For this reason Motorola is working with the TIA.[3]

Given that there has been no demonstration that the problem alleged by Motorola is a real problem today; that measurements using 100 Hz resolution bandwidth more closely resemble real world signal propagation; and the fact that TIA has not seen fit on its own to change the Commission's well-reasoned decision to require the use of 100 Hz resolution bandwidth, Ericsson submits the Commission should not make any changes to its rules at the present time. To the extent appropriate industry groups determine that there are better technical solutions to measuring adjacent channel interference such as use

[3] Motorola *Petition*, n. 10, p. 6.

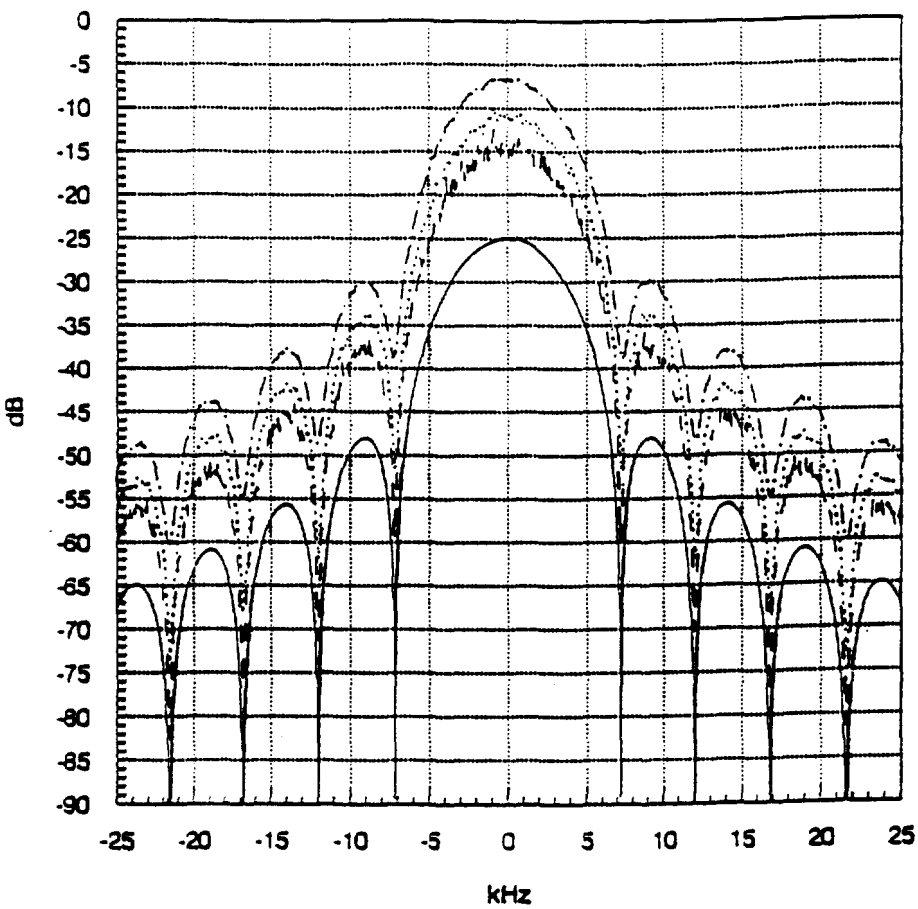
of adjacent channel coupled power, Ericsson submits the Commission should not reconsider its rules which require the use of 100 Hz resolution bandwidth.

Respectfully submitted,

The Ericsson Corporation

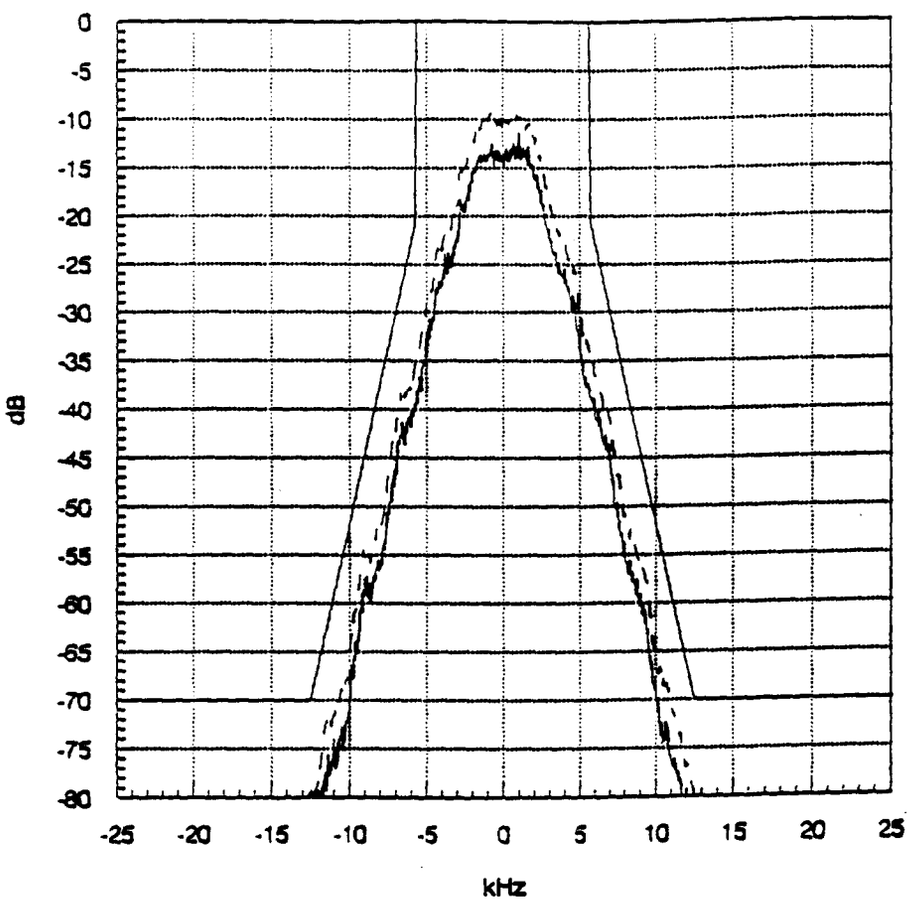
David C. Jatlow
Its Attorney

EXHIBIT A



. Analytical power spectral density of an MSK signal (solid), and simulated spectrum using 100 Hz (dashed), 300 Hz (dotted), and 1 kHz (dash-dotted) resolution bandwidth.

EXHIBIT B



Power spectral density for digital modulation, using 300 Hz (dashed) and 100 Hz (solid) resolution bandwidth.